DOCUMENT RESUME

ED 380 984 FL 021 930

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TITLE Metalinguistic Knowledge, Language Aptitude and Language Proficiency.
PUB DATE Mar 94
NOTE 14p.; Paper presented at the Annual Language Testing Research Colloquium (Washington, DC, March 5, 1994).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS College Students; Comparative Analysis; Foreign Countries; *French; Grammar; Higher Education; Introductory Courses; *Language Aptitude; *Language Proficiency; Language Tests; *Metalinguistics; *Psycholinguistics; Second Language Learning; Statistical Analysis; Testing
IDENTIFIERS University of Lancaster (England)

ABSTRACT

This paper presents a preliminary investigation of the psycholinguistic abilities of first-year undergraduate student learners of French. In particular, it reports on the construction and use of a battery of tests of metalinguistic knowledge, language aptitude, grammatical accuracy in French, and French linguistic proficiency, and explores the relationships among these measures with a view to establishing levels of metalinguistic knowledge in incoming undergraduates. The paper reports on pilot work and makes proposals for further research in the light of the results. Contains three references. (Author)

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Metalinguistic Knowledge, Language Aptitude and Language Proficiency

David Steel and J. Charles Alderson

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METALINGUISTIC KNOWLEDGE, LANGUAGE APTITUDE AND LANGUAGE PROFICIENCY

David Steel and J Charles Alderson

This paper presents a preliminary investigation of the psycholinguistic abilities of first-year undergraduate student learners of French. In particular, it reports on the construction and use of a battery of tests of metalinguistic knowledge, language aptitude, grammatical accuracy in French, and French linguistic proficiency, and explores the relationships amongst these measures with a view to establishing levels of metalinguistic knowledge in incoming undergraduates. The paper reports on pilot work and makes proposals for further research in the light of the results.

1. The Context:

First-year undergraduate students of French at Lancaster University

2. The perceived problem:

According to university modern language teachers, incoming students know little about language and are less accurate in their language use than previous years' students. However, first-year language teaching assumes both knowledge about language and a degree of grammatical accuracy.

3. Issues:

What is meant by 'knowledge about language' needs to be explored, but it typically includes a knowledge of and ability to use metalanguage appropriately.

Staff impressions of these deficiencies need corroboration, and no empirical evidence was available.

The consequences of such deficiencies may be that students need to be taught a metalanguage in secondary school. However, it may be that university teaching should change instead, in order not to rely upon (non-existent) metalinguistic knowledge. A further possibility, however, is that 'knowledge about language' and language proficiency are unrelated.

4. Background:

1. Communicative language teaching in schools has led to greater ability to use the modern foreign language, but a de-emphasis on accuracy and metalanguage.

2. Knowledge about language is held to bĕ an important component of education in general, and is thought to contribute to language learning.

3. Language aptitude, one key component of which is grammatical sensitivity, is still widely regarded as important in language learning success. The relationship between aptitude and knowledge about language is unknown.

4. Blcor's 1986 survey showed low levels of knowledge about language, even for 'linguists', but had no information on the relationship of such lack of knowledge to language proficiency.

5. Research issues

In light of the above, several possibilities present themselves:

1. University foreign language students' supposed lack of metalinguistic knowledge does not exist, and the situation now is in fact no different from previously.

Alternatively, students' metalinguistic knowledge has indeed declined and is now at a low level.

2. Even if this suspected lack of knowledge can be established it does not bear any relationship to competence in the modern foreign language.

Alternatively, metalinguistic knowledge does bear such a relationship.

3. If students can be shown to lack the knowledge presupposed, the consequences are that they need to learn it at university, and current assumptions concerning the appropriate methodology for first-year language teaching will need to change.

Alternatively, they do not need to learn it at university but the methodology of teaching language at university will need to change to avoid the use of metalanguage.

4. In language proficiency, a formal metalinguistic knowledge of grammar is less important than the ability to detect systematic and meaningful patterning in language: language aptitude.

6. A pilot study

6.1 Aims

This paper reports on a pilot study designed to begin to explore these and related issues. The aim of the research was to establish levels of

1. the metalinguistic knowledge, applied to English and French, of university students of French on entry.

2. their accuracy in French grammar.

3. their aptitude for learning language

4. their proficiency in French, as involved in understanding French texts

5. their self-assessment of their linguistic abilities in French

and the relationships among these variables.

6.2 Instruments and data collection

A battery of tests was developed, comprising:

a) a 100-item Test of Metalinguistic Knowledge, for both French and English. (Part of this test was based, with permission, on the instrument used by Bloor, 1986a, in order to facilitate comparison with his results; other sections included metalanguistic items identified by staff of the French Department.)

b) a 45-item Test of Language Aptitude (Part IV of the MLAT, Words in Sentences)

c) a 100-item Test of Grammatical Accuracy in French (consisting of items considered important by staff of the French Department, see below).

d) a questionnaire asking students to self-assess their ability to use French in a range of settings

e) a 50-item standardised Test of French Reading Comprehension (constructed by CITO, the Dutch National Testing Agency).

In addition, a bio-data sheet was constructed to collect information on potentially important background variables such as : age; sex; length of time spent learning the foreign language; experience of learning other modern or classical languages; time spent in the country of the target foreign language; parental example (whether native speaker or teacher of target language); performance on measures of language competence at A-Level.

This battery was pre-tested on Sixth Year secondary school pupils studying A Level French. The trialling provided valuable information on timing and level of difficulty, and in the light of the trials, the tests were revised. All first-year undergraduates entering the French section of the Modern Languages Department at Lancaster University took the test battery in a two-week period in October 1992 (not all students took every section of the battery: see reported n sizes). In addition, students studying first-year introductory courses in linguistics took the Bloor part of the Metalinguistic Knowledge test, to enable comparisons with the Bloor data and with the results of the French undergraduates.

6.3 Results

The descriptive statistics are as follows:

Table 1: Descriptive Statistics

	Metaling	MLAT	Grammar	French Reading
Number of students	128	128	107	102
Number of items	100	45	100	50
Mean score	59.88	22.14	54.83	31.78
Mean as %	60%	49%	55%	64%
Standard deviation	11.71	4.99	11.10	8.56
Reliability (alpha)	.897	.687	.856	.890

Reliabilities are entirely satisfactory for this test battery, except for MLAT. This latter finding is somewhat surprising, as the test is standardised and has been widely used for thirty years.

The descriptive statistics reveal that the tests were all of appropriate difficulty for this population and resulted in a reasonable spread of candidates across the range of possible scores. Item analysis revealed a range of item difficulties, as expected, but virtually no items were unsatisfactory because of negative discrimination. It was concluded from the item level data that the tests were satisfactory.

Students were 'weakest' on the Aptitude test, and 'strongest' at reading in French. However, the spread of students on the reading test was quite large: students vary most in their reading abilities. The mean score on the Grammar test of 55% suggests that, if this test reflects what students are supposed to know when they arrive at University, their knowledge is indeed weak. Similarly, if students could have been expected to 'know' the metalanguage in the Metalinguistic Knowledge test, their performance is worrisomely poor.

6.4.Comparison of performance on the Test of Metalinguistic Knowledge of students of French, introductory linguistics and Bloor's original data

Table 2: Comparison of Lancaster 1992/Bloor 1986 data

Lancaster French (n=128)	62.8%
Bloor 'Linguists' (n=63)	77.5%
Lancaster 'non-linguists'	50%
Bloor 'non-linguists' (n=175)	51.1%

6.4.1 Lancaster students: French students vs students of introductory linguistics

Levels of metalinguistic knowledge varied considerably in the sample, although all groups do well on a few items (identifying vowels, verbs, nouns, adjectives and subjects). All groups do particularly poorly on some items and rather badly on most items.

The French group is notably better than the other two on 17 out of the 24 questions. The differences Bloor found between linguists and non-linguists were broadly reflected in the differences between French students and students of linguistics. It seems that learners of French have a better metalanguage than other students. (Some might even wish to argue that the study of a foreign language increases one's sensitivity to grammatical categories, and hence performance on this Test of Metalinguistic Knowledge. However, the research was not designed to enable us to investigate this suggestion.)

Nevertheless, it would appear that any instruction that assumed that first year undergraduates knew much more than 'verb', 'noun' and, possibly, 'adjective' would cause students difficulties.

6.4.2 Comparison with Bloor data

The differences Bloor found between linguists and non-linguists were replicated at Lancaster, but when Bloor's linguists were compared with the Lancaster French students, the latter were generally weaker. However, when Lancaster non-language students are compared with Bloor's non-linguists, the differences virtually disappear.

Clearly more research is needed, with larger populations from other universities, but it would appear from these comparisons that, assuming comparable ability levels on admission for the two institutions, the metalinguistic knowledge of students of French has declined. However, non-linguists remained at roughly comparable levels of metalinguistic knowledge (which is considerably lower than language students in most

linguistic categories). If the populations are equivalent then this might suggest that overall standards have not declined, or that they cannot go much lower. Rather, what has declined is the metalinguistic knowledge of students of French, relative to the rest of the student population.

We again conclude that any instruction that assumed that first year undergraduates understood much more than 'verb', 'noun', 'subject' and, possibly, 'adjective' would cause students difficulties.

6.5. Students' Knowledge of Metalanguage and Grammar

6.5.1 Metalanguage.

The Bloor test was only one part of the Metalanguage Test. The latter includes a self-assessment of one's familiarity with grammatical terms, tests of knowledge of English and French grammatical terminology, and the ability to use the terms to identify parts of speech in French texts, as well as Bloor's test of ability to identify parts of speech in English text. An interesting comparison is sub-test 6 - the Bloor items in English - with sub-test 4, which covers similar items but applied to French. The two lists of form classes to be identified in French/ English texts partially overlapped, and the results for overlapping items were:

Table 3: Bloor items: French/English

	French	English
auxiliary verb	61%	54%
adjective	90%	91%
infinitive	97%	73%
preposition	69%	62%
indefinite article	25%	34%
past participle	91%	91%
conjunction	41%	56%
finite verb	49%	41%
Mean	65.4%	62.8%

These results show a tendency for the English items to be easier than the French ones. Although the differences are not marked, the results suggest that being able to apply the grammatical term to English text does not guarantee an ability to apply the same term to a French text.

Sub-test 1 asked students simply to indicate whether they were or were not familiar with certain metalinguistic terms. Of the 30 items, only 10 were reportedly familiar to more than 80% of the students. Particularly unfamiliar were: 'predicate', 'antecedent', 'partitive article' 'relative clause', 'subordinate clause', 'relative pronoun' and 'transitive verb'.

Comparisons are possible between items students claimed to be familiar with and their performance on those items elsewhere in the test. The results are:

Table 4: Claimed familiarity/ actual

	Claimed familiar	Actual correct
conjunction	72%	41/56%
direct object	95%	46/67%
indefinite article	59%	25/34%
indirect object	93%	61%
infinitive	98%	97/73%
noun	98%	99%
passive voice	74%	48%
past participle	100%	91/91%
predicate	7%	8%
preposition	91%	69/62%
proper noun	69%	78%
relative clause	35%	17%
transitive verb	42%	12%

In general it appears that students considerably overestimate their familiarity with these grammatical terms. True unfamiliarity is likely to be greater than the results for sub-test 1 suggest.

If teaching is based upon an assumption that students know the terms tested in the Metalinguistic Assessment Test, those assumptions, and possibly that teaching, need to be revised.

6.5.2 Grammar Content sub-tests

The French Grammar test covers a range of different structures and includes a variety of different methods of testing, including a gap-filling test, a translation test, and several transformation tests. Items tested include: gender, plurals, adverbs, special adjectives, superlatives, pronouns, passe compose, relative clauses, verb tenses and possessive adjectives

The most difficult section proved to be sub-test 9: relative clauses, with very weak performance by students. The easiest section by far was sub-test 7: Passe Compose (form). Candidates varied considerably in their abilities on all sections of the test, which discriminated well between weak and strong. If it is thought that students ought to do well on this grammar test, the fact that all means except one are below 70% indicates considerable weakness, but the high variability in performance means that some students do very well, whilst others are very weak, on all sections except the gap-filling.

In short, students vary greatly in the accuracy with which they use French. The interesting question is whether the ability to produce accurate French correlates with a knowledge

of metalanguage, or with grammatical sensitivity as measured by the MLAT, or indeed with an ability to understand texts written in French.

6.6 Students' French Comprehension Ability

The results in Table 1 showed the comprehension test to have been the easiest of the battery, but not too easy, with a mean of 64% and a good spread of scores. What is clear from an inspection of item facilities, however, is that this discrimination was a result of speededness: 78% of students failed to get as far as the last two items.

Students did well on the items for the first four texts: most facilities are over 75% (and 5/33 over 90%). In other words, when students did read the texts and respond to the questions, they tended to do so correctly. The problem seems to be that many students read rather slowly. This is interesting in that it suggests that students do understand written French even though some read faster than others. Are the slower readers those who have most problems with grammar or metalanguage, or who have less 'aptitude'?

6.7 Relationship among tests and constructs

In order to explore the relationship among the tests, correlations were calculated. For the 92 students who took all the components of the battery, the results are as follows:

Table 5: Intercorrelations among tests

	MLAT	Grammar	French Reading
Metaling	.435	.429	.072 (NS)
MLAT		.203 (NS)	.186 (NS)
Grammar			.399

These results seem to show that the test of French Reading shows no relationship to knowledge of metalanguage, or to language aptitude as defined by MLAT. The Metalanguage and Aptitude tests, however, do show a moderate inter-relationship, albeit less than might have been expected. The Grammar test relates moderately to the Metalanguage test, but also to the test of French Reading.

To explore the relationships further, a factor analysis was conducted, with Varimax rotation.

Table 6
Varimax rotated factor analysis: Two factors, Eigenvalue > 1.0

	Factor 1	Factor 2	Commonality

Grammar	.394	.721	.675
French Reading	-.039	.906	.823
Metalang	.869	.120	.770
Aptitude (MLAT)	.782	.096	.620
Eigenvalue	1.88	1.01	
Variance %	47%	25%	

This analysis shows that there are two factors underlying these four tests: a metalinguistic factor on which Metalanguage and Aptitude tests load high, and a test of French Reading. The Grammar test is split across the two factors, but with a higher loading on Factor 2 (French Use?) than on the metalinguistic factor.

What the analyses appear to reveal is that the Metalanguage test measures something different from what is measured by the Grammar and Comprehension tests. As was shown by the simple correlation matrix, metalinguistic knowledge and aptitude are related, although not closely. However, there is no relationship between linguistic proficiency defined by the tests we used, and metalinguistic knowledge. Subsequent sections will explore this further by comparing metalinguistic knowledge with self-assessed proficiency and with proficiency as measured by A-Level grades.

6.8 The relationship between self-assessment and test performance

There is little interpretable relationship between the difficulties that students predict for their use of French in a number of different communicative situations, and their ability as measured by the four tests. Students who predict few difficulties do not do better on the tests, nor vice versa.

However, students' assessments of their global ability to use French in the four skills did associate significantly with their test scores.

Table 7: Association of self-assessed skill with test score ($p<.05$)

self assessed skill/ test	metalanguage	aptitude	grammar	comprehension
reading	Yes	No	Yes	Yes
writing	Yes	No	No	No
listening	Yes	No	No	Yes
speaking	No	No	Yes	No

Table 7 summarises these results, showing that the Aptitude test shows no relationship with self assessment. Interestingly, the Metalanguage test shows the most consistent

associations with perceived ability in the skills: with the exception of speaking, those who rate themselves high on a skill tend to score high on the Metalanguage test, and conversely those who rate themselves low tend to score low on the test.

6.9 The relationship among biodata variables and test scores

Crosstabulations were run between biodata and test scores, and some interesting relationships were found. See Table 8 below:

Table 8

Associations between bio-data and test scores

	Metaling	Aptitude	Grammar	Reading
Language Major	No	No	No	Yes
Grade A level French	No	No	Yes	Yes
Sex	Almost	No	No	No
# weeks in France	No	No	Yes	No
Type of sec school	No	No	No	No
Other A Level Language	No	No	No	No
Grade in above	No	No	No	No
A Level EngLit	No	No	No	No
A Level EngLang	No	No	No	No

When 'Intended Major' was recategorised as 'Language-related subjects' and non-language subjects', there was no relationship between this variable and scores on the Metalanguage, Aptitude or Grammar tests, but there was with the Reading test: students intending to study languages understand French texts somewhat better, but do not do better on Grammar tests, nor have they better aptitude or higher metalanguage scores!

Significant associations were found between A Level French grade and scores on Grammar and Reading tests on the one hand, but not with the Metalanguage or Aptitude tests on the other: students who do better at A Level do not necessarily have better grammatical sensitivity or knowledge of metalanguage, but their accuracy in French grammar and their French reading comprehension are better.

Interestingly, sex was almost significantly associated with Metalanguage scores (p=.051), but not with Grammar, Aptitude or Reading. Number of weeks spent in France was not associated with Metalanguage, Aptitude or even Reading test scores, but it was associated with Grammar test scores. No significant associations were found between type of school attended, and any of the test variables: the school students attend does not make a difference to the test scores.

Whether or not students took another language at A Level has no significant association with any of the test scores, nor does the grade achieved in that other foreign language: doing another language does not increase one's metalinguistic 'ability', aptitude, accuracy in French grammar or comprehension of French. Nor is it the case that doing well at A Level English Literature or English Language will be associated with better scores on any of the tests. Whatever A Level English (Language or Literature) measures, it does not relate to grammatical sensitivity or knowledge of metalinguistic terminology.

6.10 Summary and preliminary conclusions

The correlations between the different components showed only moderate relationships: between metalinguistic knowledge and French grammatical accuracy (.43) and metalinguistic knowledge and language aptitude (grammatical sensitivity) (.44). Proficiency in reading French showed no correlation with either aptitude or metalinguistic knowledge, and only a moderate correlation with French grammatical accuracy (.40). A factor analysis revealed two separate factors: metalinguistic/ aptitude and French proficiency.

Metalinguistic knowledge showed significant associations with self-assessed global proficiency in three of the four skills, but not with other self-assessed components of ability.

Metalinguistic knowledge failed to correlate with scores on the French A-Level exam (arguably the most comprehensive measure of language proficiency we have).

Tentative conclusions are that students can be proficient in the use of French without having aptitude defined as grammatical sensitivity, and without high levels of metalinguistic knowledge. Accuracy in French contributes only moderately to this ability to use French, at least for the purpose of understanding written texts. Although metalinguistic knowledge showed some relationship to accuracy in French, its contribution to proficiency defined by a reading test, by A-Level results and by self-assessment seems to be minimal.

7. Limitations and further research

The results of the pilot study revealed a need to refine the test instruments. For tests of French accuracy, one possibility might be to include methods like editing tests, multiple choice tests, even tests of writing or translation.

The range of tests of linguistic proficiency should be widened from tests of reading to include tests of listening and writing ability.

The Test of Metalinguistic Knowledge needs revision to remove inefficient items, and to improve content coverage. In addition, one might argue that the restricted definition of metalinguistic knowledge should be widened.

The Grammatical Sensivitity component of aptitude should be complemented with measures of Inductive Language Learning Ability.

The representativeness of the Lancaster pilot study results for undergraduate students of French more generally is obviously questionable. A further study would need to cover other institutions.

The proposed follow-up study would allow:

1. Systematic comparison of levels of metalinguistic knowledge from Bloor (1986a and c), and the results of this pilot study.

2. Widening of the database on metalinguistic knowledge to cover the intakes of first-year undergraduate students of French in a range of institutions.

3. Comparison of a range of measures of linguistic ability with A-Level results in French and other language subjects.

4. Relation, for a larger, fairly homogeneous sample, of levels of metalinguistic knowledge to levels of accuracy in French, French proficiency and language aptitude.

5. Consideration of the pedagogic and curricular implications of the resultant findings about levels of knowledge, accuracy and proficiency.

References

Bloor, T (1986a) "What do language students know about grammar?" British Journal of Language Teaching, Vol 24 Winter 1986.pp 157-160

Bloor, T (1986b) "Variation and Prescriptivism in English: Modern language students' attitudes to some sociolinguistic issues" CLIE Working Papers Number 7

Bloor, T (1986c) "University Students' Knowledge about Language" CLIE Working Papers Number 8 .